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ABSTRACT

These worksheets relate to the 1973-74 official North Carolina Department of Transportation Highway Map. Topics covered include: map reading, fractions, percentage, estimating, charts, and rounding. An answer key is included. (MP)

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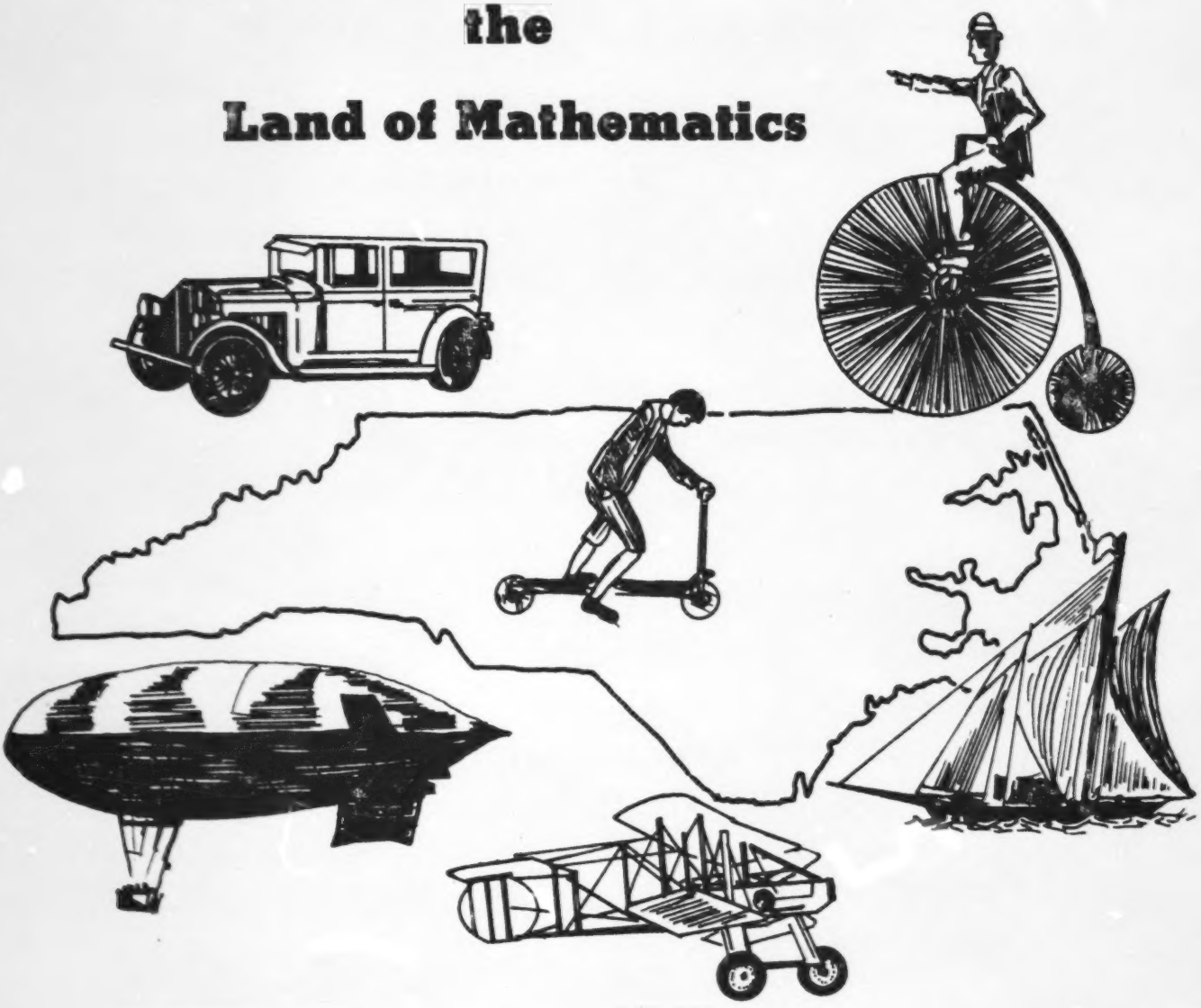
Roadmapping through the Land of Mathematics



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SE 025 495

TO THE TEACHER

These materials relate to the 1973-74 official North Carolina Department of Transportation Highway Map. They were written for use in eighth and ninth grades. Classroom sets of these North Carolina maps are available from the Public Information Officer, State Highway Commission, Highway Building, Raleigh, North Carolina 27611. It is hoped that these "real life" problems will be of interest to your students.

We suggest that the materials be distributed to the students one sheet at a time and that they be directed to make a booklet of the completed sheets.

Since the history of North Carolina is included in the eighth and ninth grade social studies program, this unit could be expanded to integrate mathematics and social studies with relatively little difficulty. The final two pages describing a trip could be increased to include points of historical, scenic and economic importance within the "trip".

The answers to the questions in this unit are given at the end.

You might want to consider weaving topics from this unit into your existing curriculum when they are appropriate, instead of using the entire unit on consecutive days.

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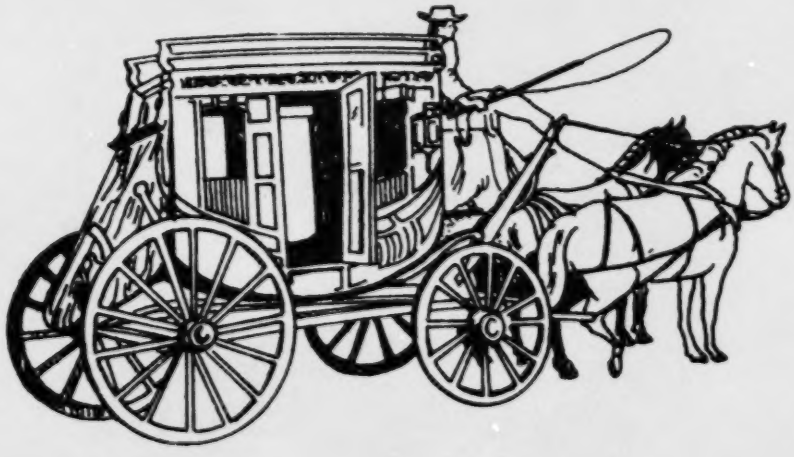
USING THE LEGEND OF A MAP

DIRECTIONS: Use the legend to help you answer these questions.

1. One inch on the map equals approximately _____miles.
2. Six and one-half inches on the map equals approximately _____miles.
3. What highway passes nearest to the Joyce Kilmer Memorial Forest? _____
4. How many full traffic interchanges are there on Interstate 40 between Interstate 77 on the west and Interstate 85 on the east? _____
5. Fifty-two miles is represented by _____inches on the map.
6. Use the legend to show you how to identify county seats,then find and identify the county seats of the counties which adjoin your county.

   a. _____ b. _____ c. _____ d. _____ e. _____
7. On the road map, it is about 1 3/8" between Clinton and Newton Grove; how many miles would this distance represent? _____
8. It is about 142 miles between Greenville and Burlington. How many inches would it take to represent this distance on the road map? _____. (Round answer to the nearest whole inch.)
9. A _____ is the symbol which is used in the legend to locate cities and towns under 2000 population.



USING CITY MAP INSERTS

DIRECTIONS: *Find the city map inserts on your map to help you answer these questions.*

GREENSBORO

1. Which highway passes nearest to War Memorial Stadium?

2. Which route would you follow to Bennet College if you were entering Greensboro on Interstate 40 from Winston-Salem?

3. Name four lakes that are listed on the Greensboro map.

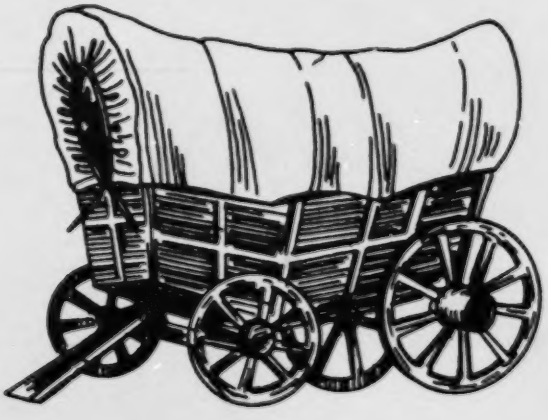
WILMINGTON

4. Give the route you would follow to UNC-Wilmington if you were entering the city on U.S. 17 from Myrtle Beach, South Carolina.

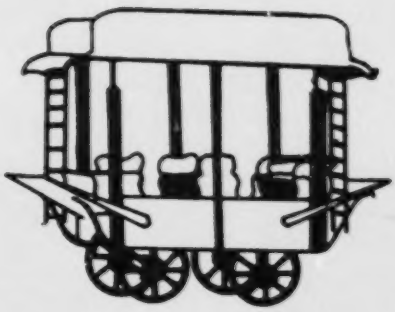
5. Give the route you would take to the USS North Carolina Battleship Memorial if you were entering the city on U.S. 17 from Jacksonville?

CHARLOTTE

6. What route would you follow to the Mint Museum of Art if you were entering Charlotte from Statesville on U.S. 21?



FACTS TO KNOW ....



1. What are the two longest interstate highways in North Carolina?

   _____

2. What are the two shortest interstate highways in North Carolina?

   _____

3. Locate four lighthouses off the coast of North Carolina; identify them and tell which town is closest to each of these lighthouses.

   a. _____ b. _____

   c. _____ d. _____

4. The largest lake with boundaries exclusively in North Carolina is

   _____

5. What is the westernmost town in North Carolina? _____

   What is the southernmost town in North Carolina? _____

   What is the easternmost town in North Carolina? _____

6. What is the area (in square miles) of North Carolina? _____

7. What was the population of North Carolina in 1970? _____

8. Kill Devil Hills is at _____ north latitude.

9. Nashville, N. C. is at _____ west longitude.

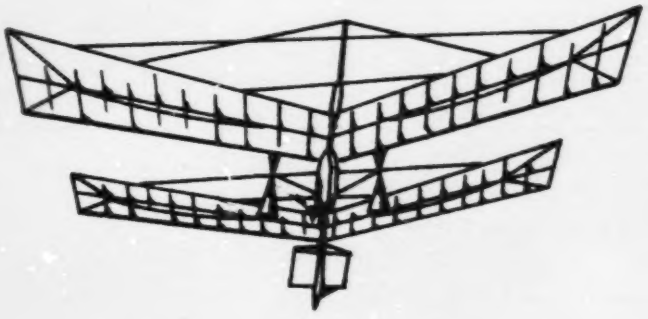
MAKING LOCATIONS GRAPHICALLY CLEAR

OR

USING MAP COORDINATES TO LOCATE PLACES

A. *Name the largest city or town nearest to these map coordinates.*

1. J-3 _____
2. H-2 _____
3. E-3 _____
4. G-2 _____
5. H-3 _____
6. E-2 _____
7. F-3 _____
8. E-4 _____
9. J-4 _____
10. C-2 _____



B. *What place of interest, park, forest or body of water is located nearest to these map coordinates?*

1. J-3 _____
2. D-2 _____
3. B-2 _____
4. J-1 _____
5. H-4 _____
6. F-3 _____
7. F-1 _____
8. G-2 _____
9. L-1 _____
10. M-2 _____

QUO VADIS

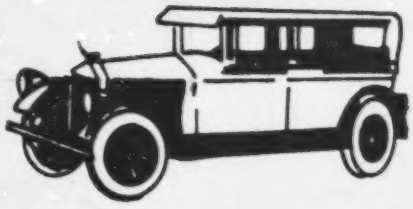
OR

JUST WHERE DO YOU THINK YOU'RE GOING?

Eden	Albemarle	Burlington
Durham	Edenton	Winston-Salem
Wilmington	Shelby	Greensboro

Which of the cities listed above is.....

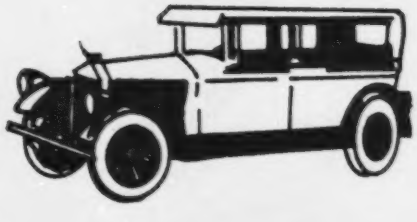
1. Due north of Greensboro? _____
2. Northwest of Raleigh? _____
3. Due south of Goldsboro? _____
4. Southeast of Salisbury? _____
5. Southwest of Elizabeth City? _____
6. Due west of Gastonia? _____
7. Northwest of Reidsville? _____
8. Due west of Rocky Mount? _____
9. Due west of Greensboro? _____

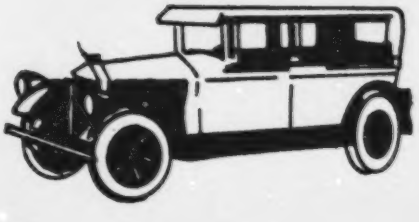


FOLLOWING THY NOSE

Name The Largest Town.....

1. Between Winston-Salem and Burlington _____
2. Between Winston-Salem and Hickory _____
3. Between Rocky Mount and Goldsboro _____
4. East of Salisbury and South of Greensboro _____
5. South of Hickory and West of Charlotte _____
6. Northeast of Fayetteville and South of Wilson _____
7. South of Chapel Hill and Southwest of Raleigh _____
8. Northwest of Monroe and South of Statesville _____
9. Northeast of Goldsboro and West of Washington _____
10. South of Mars Hill and Northwest of Bat Cave _____





STATE PARKS AND RECREATION AREAS

DIRECTIONS: *What state parks are located near the following towns?*

1. West Jefferson
2. Roaring Gap
3. Ararat
4. Danbury
5. Churchland
6. Albemarle
7. Mamers
8. White Lake
9. Seven Springs
10. Carolina Beach
11. Oswalt

DIRECTIONS: *What national parks or attractions are located near the following towns?*

1. Kill Devil Hills
2. Blowing Rock
3. Barnardsville
4. Brevard
5. New Bern
6. Morehead City
7. Kure Beach

USING THE DISTANCE TABLE

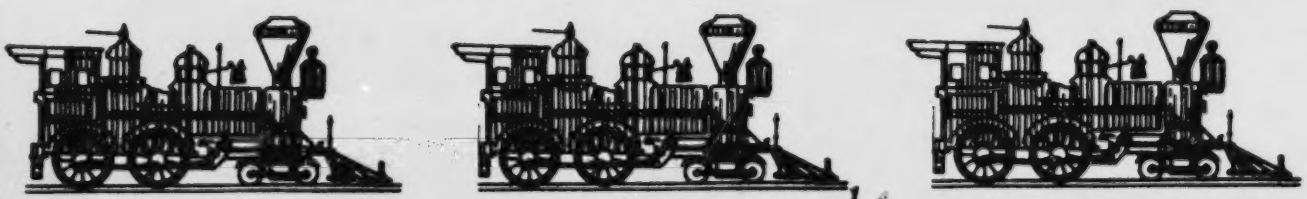
DIRECTIONS: *Use the Distance Table on the map to find the distance between these cities.*

CITIES	DISTANCE	CITIES	DISTANCE
1. Cape Hatteras and Murphy	_____	9. Hickory and Asheville	_____
2. Cherokee and Albemarle	_____	10. Laurinburg and Lenoir	_____
3. Kannapolis and Durham	_____	11. Southport and Cherokee	_____
4. Asheville and N. Wilkesboro	_____	12. Hendersonville and Henderson	_____
5. Roanoke Rapids and Mount Mitchell	_____	13. Lexington and Wilson	_____
6. Southern Pines and Winston-Salem	_____	14. Waynesville and Elizabeth City	_____
7. Fontana and Jacksonville	_____	15. Boone and Sanford	_____
8. Fayetteville and Kitty Hawk	_____	16. Reidsville and Blowing Rock	_____

COMPUTING MILEAGE

DIRECTIONS: Listed in each item below are the names of two towns followed by the highway routes we are to use in getting from the first town to the other. Use this information to determine the approximate mileage between the towns.

	TOWNS	HIGHWAYS	APPROXIMATE MILEAGE
1.	Ranger to Brevard	US 19 and US 64	_____
2.	Waynesville to Forest City	US 276 and US 64	_____
3.	Shelby to Elkin	NC 18 and NC 268	_____
4.	Wadesboro to Johnsonville	NC 109 and NC 24	_____
5.	Liberty to Oxford	NC 49 and Interstate 85	_____
6.	Fuquay-Varina to Williamston	NC 42 and US 64	_____
7.	Wards Corner to Washington	NC 53 and US 17	_____
8.	Elizabeth City to Pantego	US 17, NC 45 and NC 99	_____
9.	Zebulon to Roxboro	NC 96 and US 158	_____
10.	Salisbury to Hamlet	US 52 and US 74	_____
11.	Pireway to Wallace	NC 905, US 701 and NC 41	_____
12.	Lincolnton to Southern Pines	NC 27, NC 73, NC 24, and NC 22	_____
13.	Wilkesboro to Pittsboro	NC 115, Interstate 40 and US 64	_____
14.	Boone to Biscoe	US 421, US 601, US 64 and US 220	_____
15.	Waxhaw to Burlington	NC 75, US 601 and NC 49	_____



WE FIND HIGHWAY JUNCTIONS.....

DIRECTIONS: *Use the Index to Cities and Towns to find the following places on the map; also list the highways which form junctions in or near those towns.*

Example: Ramseur — U.S. 64, N.C. 49, and N.C. 22

	TOWN	JUNCTIONS
1.	Warsaw	_____
2.	Lexington	_____
3.	Brooks Cross Roads	_____
4.	Mount Gilead	_____
5.	Newton Grove	_____
6.	Pireway	_____
7.	Beulaville	_____
8.	Morganton	_____
9.	Troy	_____
10.	Franklin	_____
11.	Saratoga	_____
12.	Burlington	_____
13.	Rich Square	_____
14.	Rockingham	_____

WHERE OH WHERE WILL WE BE?

DIRECTIONS: Trace the indicated route and tell where your travel ends and how far you will have traveled.

Example: Start at Rolesville, drive 42 miles north on U.S. 401, travel east on U.S. 158 for 35 miles and you are in Roanoke Rapids and have traveled 77 miles.

1. Begin at Ridgecrest, drive 17 miles east on Interstate 40, travel south 38 miles on U.S. 221 and you are in _____ and have traveled _____ miles.

2. Start at Burnsville, drive east for 20 miles on U.S. 19E, drive east on N.C. 194 for 4 miles, travel south on U.S. 221 for 44 miles and you are in _____ and have traveled _____ miles.

3. Drive west from Mount Pleasant on N.C. 73 for 51 miles, drive north on N.C. 27 for 8 miles, travel west on N.C. 182 for 20 miles and you are in _____ and have traveled _____ miles.

4. Start at Wingate, drive east on U.S. 74 for about 41 miles, travel north on U.S. 1 for 54 miles, drive west on N.C. 42 for 13 miles and you are in _____ and have traveled _____ miles.

5. Begin at Jacksonville, drive north on U.S. 17 for 77 miles, northeast on N.C. 171 for 18 miles, drive east on 64 and you are in _____ and have traveled _____miles.

6. Start at Chapel Hill and drive north on N. C. 86 for 54 miles, travel west on U.S. 58 for 61 miles and you are in _____ and have driven _____ miles.

7. Proceed northwest from Spivey's Corner on U.S. 421 for 25 miles, turn north on U.S. 401 for 62 miles, go northeast on N.C. 561 for 30 miles and you are in _____and have driven _____miles.

8. Start at Rocky Mount and drive east on U.S. 64 for 151 miles, then drive south for 62 miles and you are in _____ and have driven _____ miles.

9. Begin at Boone and travel about 7 miles south on U.S. 321, turn south on the Blue Ridge Parkway until you reach N.C. 128, drive north on N.C. 128 for 6 miles and you are _____.

10. Locate N.C. 55 south of Durham and follow it to where it terminates. The name of the city where you find the demise of N.C. 55 is _____.

WHICH ROUTE IS SHORTEST?

For each of the following problems, first put a check by the letter which you think represents the shortest route. Then determine the mileage for EACH route and record it in the appropriate space. Change the location of the check mark if your estimate was incorrect.

Problem 1: *If you want to travel from Raleigh to Charlotte, which of the following would be the shortest route?*

_____A. Go west on US 70 to Interstate 85, then South on Interstate 85 to Charlotte.

_____B. Go south on US 1 to US 64, west on US 64 to NC 49, and then go west on NC 49 to Charlotte.

_____C. Go south on US 1 to US 15, west on US 15 to NC 24, and then go west on NC 24 to Charlotte.

Problem 2: *If you want to travel from Rockingham to Kinston, which of the following would be the shortest route?*

_____A. Go north on US 1 to NC 27, east on NC 27 to NC 50, south on NC 50 to NC 55, and then go east on NC 55 to Kinston.

_____B. Go east on US 74 to NC 41, east on NC 41 to NC 11, and then go north on NC 11 to Kinston.

_____C. Go east on US 74 to US 401, north on US 401 to US 13, northeast on US 13 to US 70, and then go east on US 70 to Kinston.

Problem 3: *If you want to go from Hickory to Brevard, which of the following would be the shortest route?*

_____A. Go west on Interstate 40 to NC 9, south on NC 9 to US 64, and then go southwest on US 64 to Brevard.

_____B. Go west on Interstate 40 to US 64, then go southwest on US 64 to Brevard.

_____C. Go west on Interstate 40 to US 70, west on US 70 to US 25, south on US 25 to NC 280, south on NC 280 to US 64 and then go southwest on US 64 to Brevard.

Problem 4: *If you want to travel from Wilmington to Fayetteville*

_____A. Take U.S. 74 west to Interstate 95, and take I-95 north to Fayetteville.

_____B. Take U.S. 74 west to N.C. 87, and then take N.C. 87 northwest to Fayetteville.

_____C. Take U.S. 421 north to N.C. 210, and then take N.C. 210 west to Fayetteville.

Problem 5: *Fayetteville to Elizabeth City*

_____A. Take I-95 north to U.S. 301, near Kenly, U.S. 301 north to U.S. 64, U.S. 64 east to Bethel, from Bethel take U.S. 64 - 13 east to U.S. 17 and then take U.S. 17 northeast to Elizabeth City.

_____B. Go northwest on U.S. 13 to Williamston, U.S. 13-17 to U.S. 17, and then take U.S. 17 northeast to Elizabeth City.

_____C. Go east on U.S. 13 to N.C. 55, east on N.C. 55 to N.C. 11, north on N.C. 11 to N.C. 350, northeast on N.C. 350 to U.S. 13, north on U.S. 13 to U.S. 158, and then go east on U.S. 158 to Elizabeth City.

Problem 6: *If you want to travel from Sanford to Belhaven*

_____A. Go north on U.S. 1 to Raleigh, east on U.S. 64 to U.S. 264 outside of Zebulon, east on U.S. 264 to N.C. 92, and then east on U.S. 92 to Belhaven.

_____B. Go east on U.S. 421 to N.C. 42, east on N.C. 42 to U.S. 264, east on U.S. 264 to N.C. 92, and then go east on N.C. 92 to Belhaven.

_____C. Go north on U.S. 1 to Raleigh, east on U.S. 64 to U.S. 17, south on U.S. 17 to U.S. 264, east on U.S. 264 to N.C. 92, and then go east on N.C. 92 to Belhaven.

MAKING A BEELINE AS THE CROW FLIES

A. Name the largest city within a 30 mile radius of

1. Delco _____
2. Lenoir _____
3. Albemarle _____
4. Kinston _____
5. Burlington _____

B. Determine the approximate airline distance between the following pairs of towns, and compare this with the mileage listed in the distance chart.

	Distance Chart	Airline Distance	Difference
1. Albemarle and Southern Pines	_____	_____	_____
2. Winston-Salem and Durham	_____	_____	_____
3. Chapel Hill and Asheboro	_____	_____	_____
4. Hickory and Asheville	_____	_____	_____
5. Morehead City & Cape Hatteras	_____	_____	_____

C. What is the approximate flying time (in hours and minutes) of an airplane traveling at 360 miles per hour from

1. Greensboro to Wilmington? _____
2. Asheville to Raleigh? _____
3. Charlotte to Winston-Salem? _____

USING THE POPULATION CHART

DIRECTIONS: Look up the population of the following places and write the population first in numerals and then in words.

Example: Bath 231, two hundred thirty-one

1. Valdese
2. Drexel
3. Durham
4. Wingate
5. St. Pauls
6. Greensboro
7. New Bern
8. Lumberton
9. Raleigh
10. Hickory
11. Charlotte
12. Reidsville
13. Archdale
14. Burlington
15. Winston-Salem

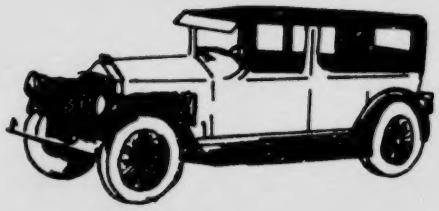
HOW MUCH LARGER?

DIRECTIONS: *Use the Official 1970 Census information included in this unit to determine how much larger the population of the first town is than the second.*

Example: Winston-Salem than Troy 130,484

1. Ahoskie than Louisburg _____
2. Old Fort than Ruth _____
3. Salisbury than Newton _____
4. Reidsville than Mount Gilead _____
5. Greensboro than Raleigh _____
6. Charlotte than Asheville _____
7. Morehead City than Oriental _____
8. Graham than Chocowinity _____
9. Hope Mills than Dundarrach _____
10. Cary than Seaboard _____
11. Mocksville than Milwaukee _____
12. Washington than Yadkinville _____
13. Greenville than Bethel _____
14. Southern Pines than Spruce Pine _____
15. Spindale than Wilson Mills _____
16. Lenoir than Saluda _____
17. Shelby than Kenly _____
18. Chapel Hill than Rose Hill _____
19. Mars Hill than Pink Hill _____
20. Charlotte than Burlington _____
21. Durham than Shallotte _____
22. Rocky Mount than Lasker _____
23. Black Mountain than Love Valley _____

HOW MUCH SMALLER IN POPULATION IS . . .



1. Longview than New Bern?_____
2. Oriental than Lexington?_____
3. Morrisville than Asheville?_____
4. Milton than Durham?_____
5. Harkers Island than Greensboro?_____
6. Lillington than Siler City?_____
7. Mortimer than Shelby?_____
8. Sims than Rockwell?_____
9. Vandemere than Smithfield?_____
10. Vass than Kinston?_____
11. Powellsville than Morganton?_____
12. Roper than Lumberton?_____
13. Acme than Morehead City?_____
14. Grifton than Asheville?_____
15. Godwin than Sanford?_____
16. Littleton than Kannapolis?_____
17. Centerville than Davidson?_____
18. Garysburg than Oxford?_____
19. Falkland than Hickory?_____
20. Colerain than Wilmington?_____
21. Staley than Wilson?_____
22. Todd than Winston-Salem?_____
23. Speed than Charlotte?_____
24. Snow Hill than Asheboro?_____
25. Nags Head than Thomasville?_____

ARRANGING IN ORDER I

DIRECTIONS: *Number the following locations in order from* smallest *to* largest *according to their population.*

Group 1

Order		Population
___	A. Ahoskie	_____
___	B. Andrews	_____
___	C. Archdale	_____
___	D. Askewville	_____
___	E. Aurora	_____
___	F. Ayden	_____

Group 2

Order		Population
___	A. Aberdeen	_____
___	B. Burgaw	_____
___	C. Crossnore	_____
___	D. Dillsboro	_____
___	E. Elon College	_____
___	F. Fairmont	_____
___	G. Grover	_____

Group 4

Order		Population
___	A. Murphy	_____
___	B. Andrews	_____
___	C. Laurel Park	_____
___	D. Cherry Point	_____
___	E. Canton	_____
___	F. Lillington	_____
___	G. Boone	_____
___	H. Jefferson	_____
___	I. Mount Airy	_____
___	J. Walkertown	_____
___	K. Ramseur	_____
___	L. Concord	_____

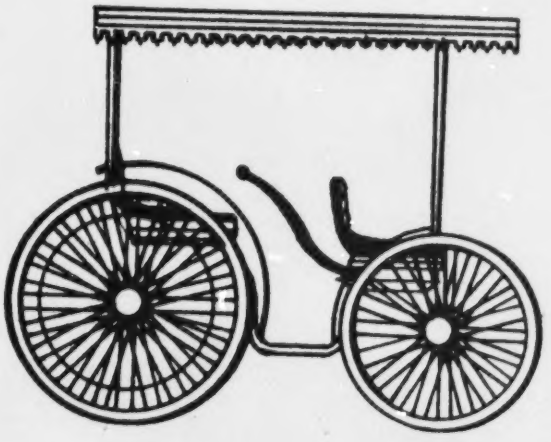
Group 3

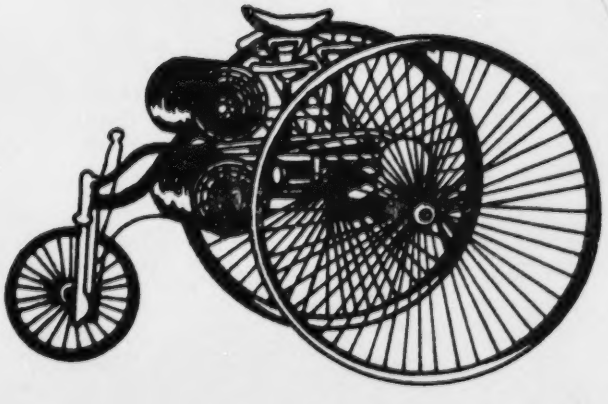
Order		Population
___	A. Saluda	_____
___	B. Seven Springs	_____
___	C. Roseboro	_____
___	D. Nashville	_____
___	E. Norwood	_____
___	F. North Wilkesboro	_____
___	G. Liberty	_____
___	H. Knightdale	_____
___	I. Garner	_____

DIRECTIONS: *Number the following cities and towns in order from* largest *to* smallest *according to their population.*

Group 1

Order			Population
_____	A.	Youngsville	_____
_____	B.	Yanceyville	_____
_____	C.	Yadkinville	_____
_____	D.	Woodville	_____
_____	E.	Winterville	_____
_____	F.	Whiteville	_____
_____	G.	Weaverville	_____
_____	H.	Waynesville	_____
_____	I.	Warrensville	_____
_____	J.	Taylorsville	_____
_____	K.	Stoneville	_____
_____	L.	Stanleyville	_____





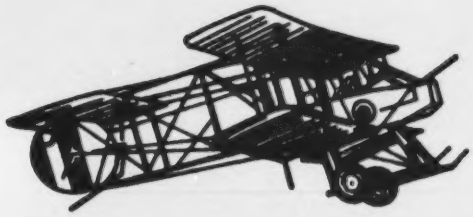
Group 2

Order			Population
_____	A.	Chapel Hill	_____
_____	B.	Laurel Hill	_____
_____	C.	Mars Hill	_____
_____	D.	Pink Hill	_____
_____	E.	Rose Hill	_____
_____	F.	Snow Hill	_____
_____	G.	Bath	_____
_____	H.	Benson	_____
_____	I.	Biscoe	_____
_____	J.	Roper	_____
24_____	K.	Micro	_____

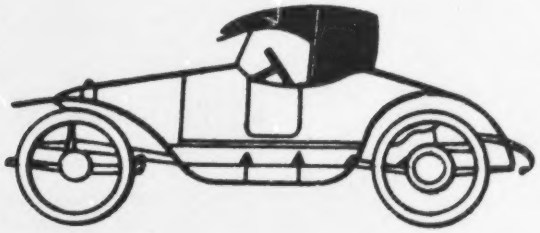
NORTH CAROLINA'S SMALLEST CITIES

DIRECTIONS: List the nineteen smallest cities in order from smallest to largest. (The first one is done for you.)

1. Dellview
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.



NORTH CAROLINA'S LARGEST CITIES



DIRECTIONS: *List the twenty (20) largest cities in North Carolina, in ORDER, according to population. Arrange from* **largest *to* smallest.**

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

16.

17.

18.

19.

20.

POPULATION AVERAGES

DIRECTIONS: *Determine the average population of each of the following groups of towns and cities. Record each average on the appropriate blank.*

1. Bakersville
   Indian Trail
   Lake Lure
   Stanfield
   _____

2. Belmont
   Hamlet
   Roxboro
   _____

3. Mount Airy
   Mount Gilead
   Mount Holly
   Mount Olive
   Mount Pleasant
   _____

4. Charlotte
   Greensboro
   Winston-Salem
   Raleigh
   _____

5. Beargrass
   Chadwick Acres
   Council
   Culberson
   Dundarrach
   Guilford College
   Love Valley
   McDonald
   Margaretsville
   Marietta
   Mortimer
   Ocean Isle Beach
   Palmyra
   Parkersburg
   South Creek
   Todd
   Topsail Beach

6. Goldsboro
   Fort Bragg
   Fayetteville
   Greenville
   Bath
   Asheville
   Camp Lejeune

....WHERE HAVE ALL THE PEOPLE GONE?

1. Open a compass to a "40 mile" radius, place the point on Chocowinity and draw a circle. Name the six largest cities which fall on or closest to this circle and compute their average population.

A. TOWN POPULATION

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

B. Average population: _____

2. Using the same "40 mile" radius, set the compass point down on Gold Hill and draw another circle. Identify the six largest cities on or very close to this circle. Compute the average population of these towns.

A. TOWN POPULATION

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

B. Average population: _____

3. Now that we have moved westward from the Coastal Plains in problem #2, let's continue the journey into the mountains with the "40 mile" radius compass setting. Place the compass point down at Oak Hill and draw a circle. Now name the six largest towns which lie on or closest to this circle and then compute their average population.

A.	TOWN	POPULATION
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____

B. Average population: _____

4. From these three problems one may rightly conclude that the population of North Carolina is concentrated in the piedmont section of the state. But it is wise to be alert to the possibility that statistics can be used to misrepresent a given situation. The following is an example of how easy it is to mislead people by selecting information to represent an incorrect point of view. If you were interested in conveying the idea that the population of the Piedmont is about the same as that of the Mountains and Coastal Plains, then you might direct someone to draw a circle with a radius of 40 miles around the Piedmont community of Level Cross. The average population of the six largest towns on this circle will differ greatly from the results of problem #2.

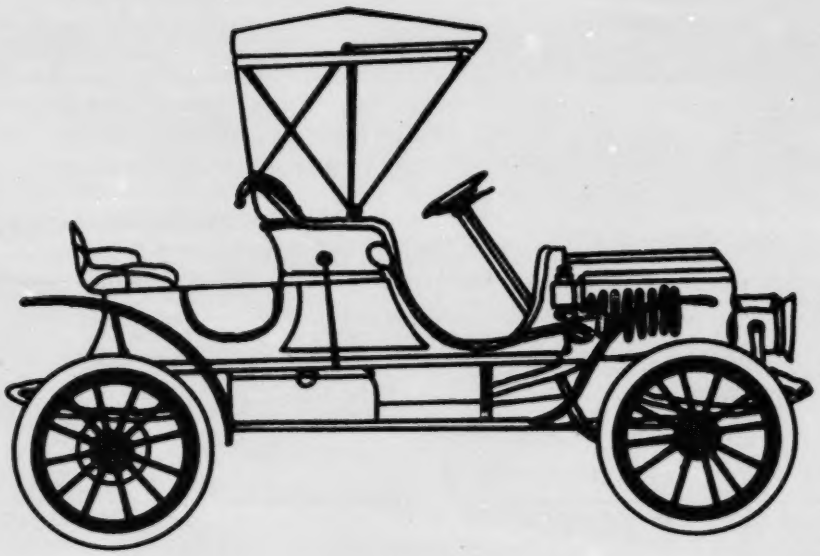
A.	TOWN	POPULATION
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____

B. Average population: _____

C. Estimate how many times greater the average population was as determined in # 2?

_____

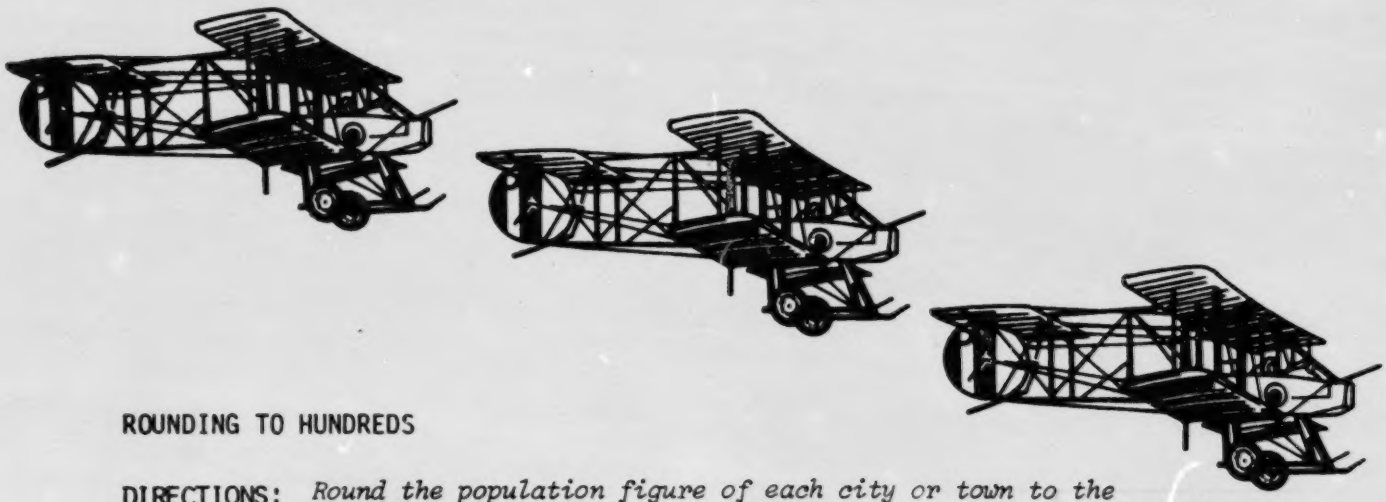
D. Now divide the result you obtained in # 2 B by your answer in # 4 B. Carry out the division to the nearest tenth and compare this answer to your estimate in # 4 B. _____ times greater.



ROUNDING TO TENS

DIRECTIONS: *Round the population figure of each city or town to the nearest ten.*

1. Morehead City _____
2. Severn _____
3. Lumber Bridge _____
4. Hendersonville _____
5. Rowland _____
6. Atlantic Beach _____
7. Washington _____
8. Smithtown _____
9. Winton _____
10. Snow Hill _____
11. Tarheel _____
12. Autryville _____
13. Belhaven _____
14. Mount Olive _____
15. Mortimer _____
16. North Wilkesboro _____
17. Shallotte _____
18. Love Valley _____
19. Raleigh _____
20. Sims _____



ROUNDING TO HUNDREDS

DIRECTIONS: *Round the population figure of each city or town to the nearest hundred.*

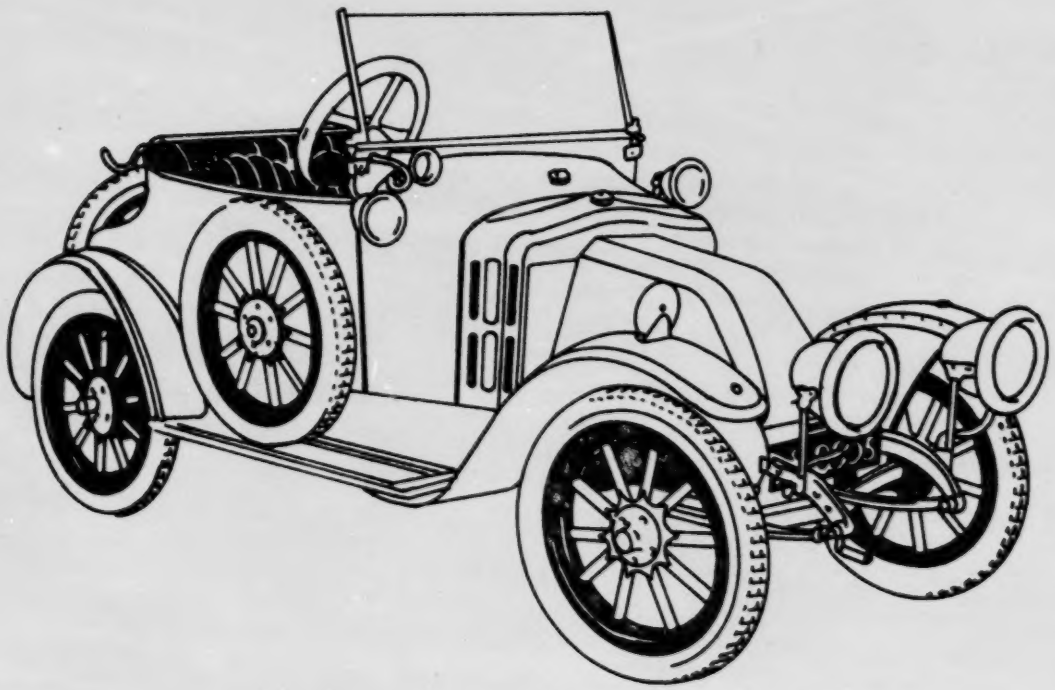
1. Shelby _____
2. Polkton _____
3. Lattimore _____
4. Kelford _____
5. Powellsville _____
6. Roxobel _____
7. Seagrove _____
8. Hillsboro _____
9. Fort Bragg _____
10. Coats _____
11. Boone _____
12. Elizabethtown _____
13. Pittsboro _____
14. Trenton _____
15. Butner _____
16. Concord _____
17. Lincolnton _____
18. Roanoke Rapids _____
19. Lake Waccamaw _____
20. Rose Hill _____

ROUNDING AGAIN

ROUNDING TO THOUSANDS

DIRECTIONS: *Round the population figure of each town or city to the nearest thousand.*

1. Fayetteville _____
2. Denton _____
3. Charlotte _____
4. Monroe _____
5. Salisbury _____
6. Rocky Mount _____
7. Durham _____
8. Lenoir _____
9. Gastonia _____
10. Eden _____



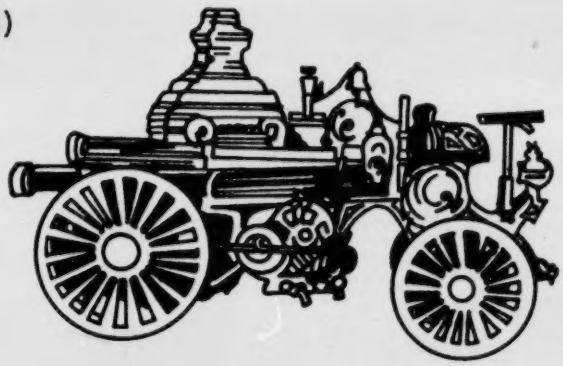
11. Greenville _____
12. Hickory _____
13. Kinston _____
14. Mount Airy _____
15. Goldsboro _____
16. Davidson _____
17. Elizabeth City _____
18. Greensboro _____
19. Henderson _____
20. Plymouth _____

LAST ROUND UP

ROUNDING TO TENS, HUNDREDS, THOUSANDS

Directions: Round the population figure of each city or town to the nearest ten, hundred, thousand

1. Spindale _____ (ten)
   _____ (hundred)
   _____ (thousand)
2. Reidsville _____
   _____
   _____
3. Biscoe _____
   _____
   _____
4. Chapel Hill _____
   _____
   _____
5. Hamlet _____
   _____
   _____
6. Parkersburg _____
   _____
   _____
7. Jefferson _____
   _____
   _____
8. Winston-Salem _____
   _____
   _____
9. Tarboro _____
   _____
   _____
10. New Bern _____
    _____
    _____
11. Rockwell _____
    _____
    _____
12. Camp Lejeune _____
    _____
    _____



13. Madison _____
    _____
    _____
14. Princeton _____
    _____
    _____
15. Clyde _____
    _____
    _____
16. Wilmington _____
    _____
    _____
17. Asheboro _____
    _____
    _____
18. Williamston _____
    _____
    _____
19. Asheville _____
    _____
    _____
20. Statesville _____
    _____
    _____

HOW MUCH LARGER?? --- HOW MUCH SMALLER??

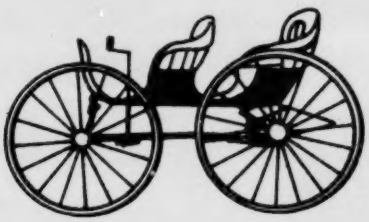
1. Elm City is about _____ times larger than Atlantic Beach.

2. Charlotte is about _____ times larger than Durham.

3. Elizabeth City is about _____ times smaller than Greenville.

4. Hickory is about _____ times larger than Garner.

5. Alexander Hills is about _____ times smaller than Jacksonville.



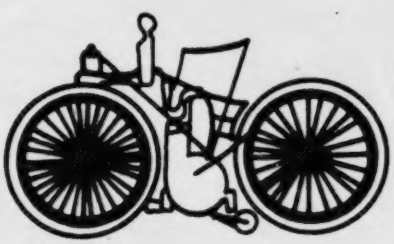
6. Everetts is about _____times smaller than Hazelwood.

7. Shelby is about _____ times larger than Rockwell.

8. Nashville is about _____ times larger than Nags Head.

9. Acme is about _____ times larger than Kelford.

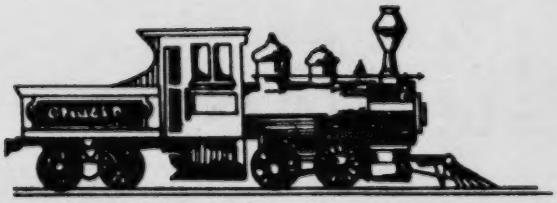
10. St. Pauls is about _____ times smaller than Wilmington.

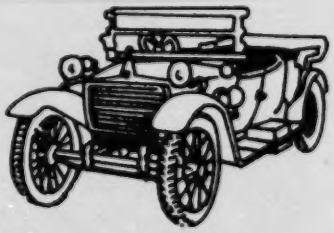


KNOW YOUR NEIGHBORS

DIRECTIONS: Use your road map and census information to answer these questions.

1. What percent of the counties border Tennessee? _____
2. Find the total population of the counties which border Tennessee. _____
3. What percent of North Carolina's population lives in counties bordering Tennessee? (Answer to the nearest tenth of a percent) _____
4. What percent of the counties border Virginia? _____
5. Find the total population of the counties which border Virginia. _____
6. What percent of North Carolina's population lives in counties bordering Virginia? (Answer to the nearest tenth of a percent) _____
7. What percent of the counties border South Carolina? _____
8. Find the total population of the counties which border South Carolina. _____
9. What percent of North Carolina's population lives in counties bordering South Carolina? _____
10. What percent of our State's counties border Georgia? _____
11. Find the total population of the counties bordering on Georgia. _____
12. What percent of North Carolina's population lives in counties bordering on Georgia? (Answer to the nearest tenth of a percent) _____
13. What percent of North Carolina's counties do not have a common boundary with another state? _____

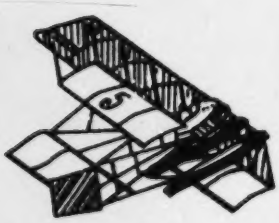


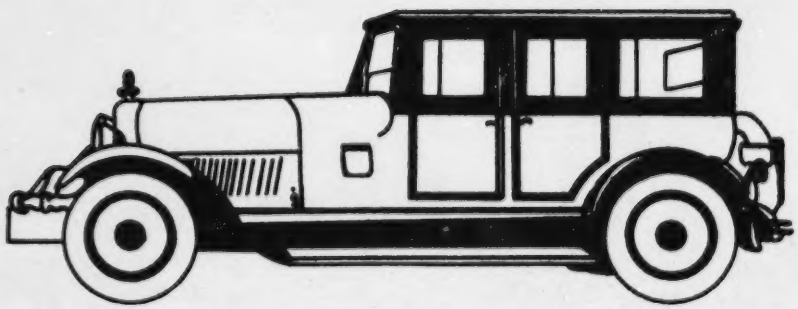


MILEAGE REIMBURSEMENT

DIRECTIONS: Given below is the mileage various salesmen for the High Pressure Water Hose Company turned in to their company for automobile travel on the job. If the company allows them thirteen (13) cents per mile, what payment will each of these High Pressure salesmen receive?

SALESMEN	MILEAGE	AMOUNT OF PAYMENT
1. A. Adams	692	$_____
2. B. Boggs	1084	$_____
3. C. Clark	1733	$_____
4. D. Davis	932	$_____
5. E. Edwards	868	$_____
6. F. Floyd	1872	$_____
7. G. Garcia	617	$_____
8. H. Herman	1125	$_____
9. I. Isley	711	$_____
10. J. James	1459	$_____

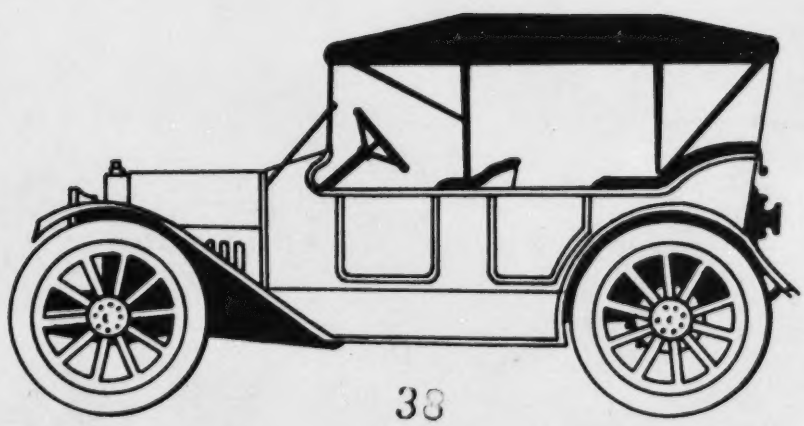




EXPENSE ACCOUNTS

DIRECTIONS: If these salesmen are allowed a $20.00 per night lodging allowance and $17.50 per day for meals and other expenses, how much will each receive in expenses if he is on the road for the indicated travel?

Salesmen	Days & Nights of Travel	Amount Received
1. A. Adams	5	$_____
2. B. Boggs	3	$_____
3. C. Clark	7	$_____
4. D. Davis	12	$_____
5. E. Edwards	11	$_____
6. F. Floyd	4	$_____
7. G. Garcia	3	$_____
8. H. Herman	6	$_____
9. I. Isley	10	$_____
10. J. James	15	$_____



CAN YOU FIND THE CORRECT INTERSECTION?

Each of the following pairs of towns is located the same straight, airline distance from a third town. This distance is given in parentheses. Can you determine the names of the unidentified towns?

1. Smithfield, Chapel Hill (27 miles) _____
2. Albemarle, Yadkinville (33 miles) _____
3. Shelby, Taylorsville (34 miles) _____
4. Snow Hill, Washington (20 miles) _____
5. Burgaw, Comfort (23 miles) _____
6. Rockingham, West End (15 miles) _____

The mileages to the unnamed towns differ in the last four exercises. Can you determine the identity of these towns?

7. 22 miles from Southport and 28 miles from Holly Ridge _____
8. 64 miles from Shelby and 93 miles from N. Wilkesboro _____
9. 46 miles from Mocksville and 19 miles from Liberty _____
10. 60 miles from Clinton and 38 miles from Northview _____

COUNTY WISE

DIRECTIONS: Use the official 1970 census information included in this unit to answer these questions.

1. Which county has the largest population? _____
   Which county has the smallest population? _____
   What is the difference in the two populations? _____

2. Name the county that is closest to the average population of all the counties. _____

3. If 15% of the population of Jones County have red hair, how many people have red hair there? _____

4. If 8 1/2% of the population of Rowan County can row a rowboat, how many boat rowers are there in Rowan County? _____

5. If 75% of the citizens of Dare County would dare to go fishing at one time, how many daring Dare Countians would be fishing? _____

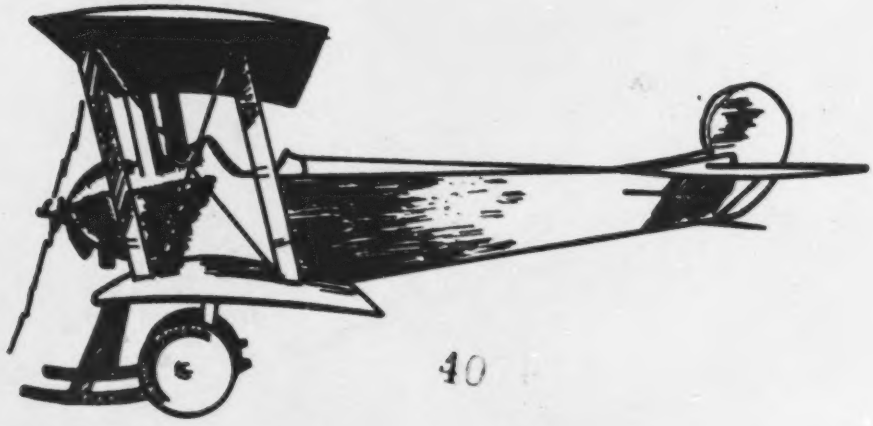
6. It has been rumored that 12,067 of the citizens of Rockingham County had ham for breakfast yesterday. If this is correct, what percent of the people of Rockingham County had ham for breakfast yesterday? _____

7. If 29,683 of the citizens of Gaston County buy gas from the Hi-Lo Gas Company (High price-Low quality), what percent of the Gaston County population buys gas from Hi-Lo? _____

8. If 952 more people were to move to Moore County, what percent of the population would be new to Moore County? _____

9. In 1970, about 6,400 students attended school in Martin County. What percent of the Martin County population was in school that year? _____

10. What percent of the counties in the State each had more than 100,000 residents in 1970? _____



CHALLENGE PAGE !!

DIRECTIONS: Tell what each pair of cities has in common.

1. Manteo and Ocracoke

2. Henderson and Dunn

3. Fayetteville and Goldsboro

4. Danbury and Atlantic Beach

5. Ansonville and Swan Quarter

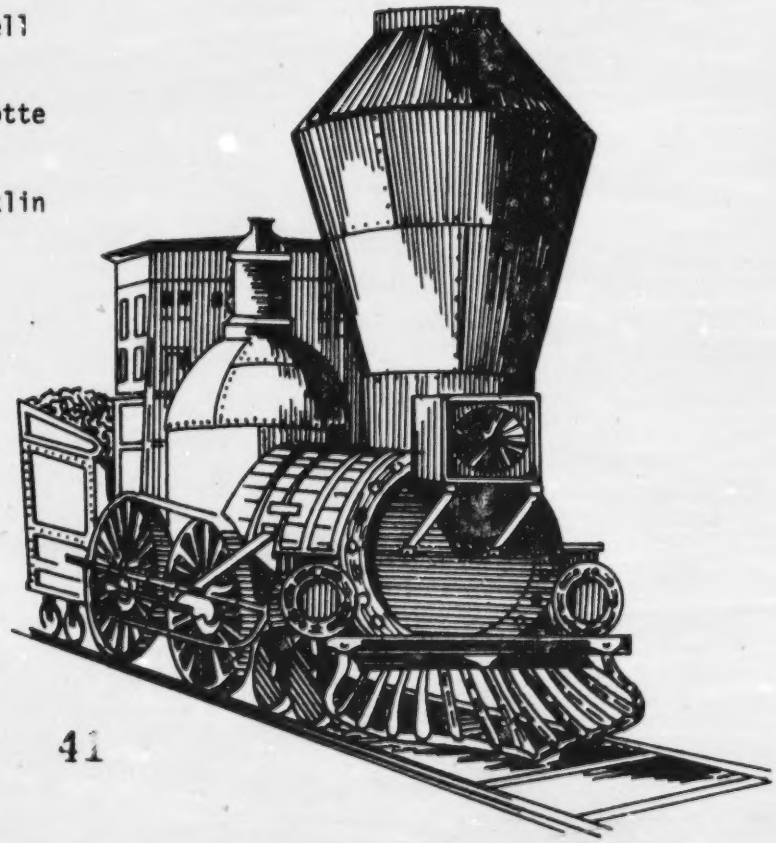
6. Washington and New Bern

7. Fairfield and Terrell

8. Rodanthe and Postell

9. Bolivia and Shallotte

10. Plymouth and Franklin



GROWING PAINS

DIRECTIONS: Use your census information to help you answer these questions.

1. If 1508 skiers moved to Banner Elk, what would be the percent of increase in the population?

2. If the population of Advance has increased by 100% since 1970, how many people live there?

3. If the residents of Ashe County were to be charged a yearly "fresh air" tax of $1.54 per person, how much money would be raised through such a levy?

4. a. Suppose H. Too Oh was the only supplier of water in Vance County and that he charged each resident $21.10 per year for water. How much money could H. Too Oh earn at this rate in a year?

   b. If H. Too Oh were to increase the water rates by 7 1/2%, how much would the new rate be for each resident? How much additional money would H. Too Oh make each year due to the rate increase?

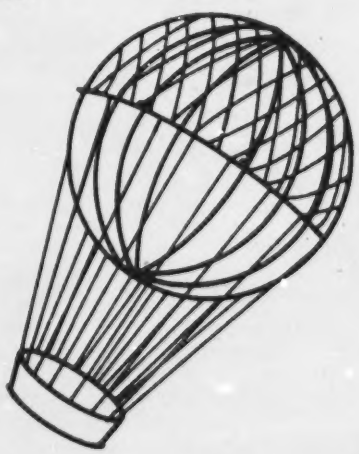
   c. H. Too Oh is hopeful that the population of Vance County will increase by 15% during the next five years. If this were to happen, how many new customers would H. Too Oh have?

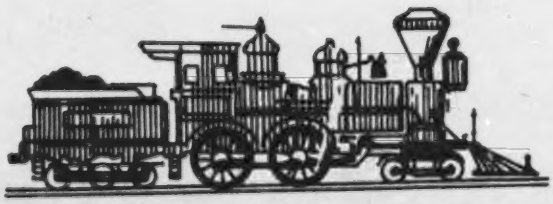
5. a. On a recent day the owner of the Park-Er-Here parking lots had as many customers as there are citizens of Hudson. If the daily parking fee is $1.75, how much were the daily receipts?

   b. The Park-Er-Here lots have to pay the city a 15% franchise tax. How much did they have to pay the city on the day mentioned above?

6. If one-fifth of the residents of Surry County were to ride to church in horse-drawn carriages, how many people in Surry County would be riding in surreys?

7. If 23% of the citizens of Macon County worked for Prophets' Profitable Enterprizes, how many employees would this be?





ODOMETER READINGS

DIRECTIONS: *The first number listed below is your odometer reading from a given point in North Carolina; the second number is your odometer reading at the end of the trip. Find the number of miles traveled on each trip.*

In each set of examples an error has been made in recording one of the odometer readings. Use a road atlas to determine which is most likely incorrect. Place a check beside the incorrect distance. What is your guess as to the error?

	Beginning Location	Reading	Ending Location	Reading	Miles Traveled
1 a.	Raleigh	12,360.5	Atlanta, Ga.	12,783.6	_____
b.	Raleigh	24,000.2	New Orleans, La.	25,957.4	_____
c.	Raleigh	14,061.4	Miami, Fla.	14,895.7	_____
2 a.	Charlotte	37,877.7	New York, N.Y.	38,491.8	_____
b.	Charlotte	34,567.0	Miami, Fla.	35,309.4	_____
c.	Charlotte	75,055.2	San Francisco. Cal.	76,797.3	_____
3 a.	Asheville	27,265.0	Atlanta, Ga.	27,472.1	_____
b.	Asheville	31,313.1	Denver, Colorado	31,827.6	_____
c.	Asheville	52,780.1	Memphis, Tenn.	53,313.7	_____
4 a.	Winston-Salem	74,210.9	Washington, D.C.	74,514.9	_____
b.	Winston-Salem	13,644.3	Knoxville, Tenn.	14,891.8	_____
c.	Winston-Salem	6,321.9	Dallas, Texas	7,419.9	_____
5 a.	Greensboro	51,006.7	Niagara Falls, N.Y.	51,618.9	_____
b.	Greensboro	64,335.5	Portland, Oregon	67,140.8	_____
c.	Greensboro	26,627.9	Vicksburg, Miss.	28,389.7	_____
6 a.	Fayetteville	45,104.6	Atlanta, Ga.	45,476.6	_____
b.	Fayetteville	13,407.6	Boston, Mass.	14,164.5	_____
c.	Fayetteville	15,116.7	Gettysburg, Pa.	16,511.4	_____

METRICATED PROBLEMS

1. a. Ball D. Head and Curl E. Head are sand dunes salesmen at Nags Head. They drive a 1942 MG which has a speedometer calibrated in kilometers per hour. If the Head brothers averaged driving their car 80 kilometers per hour on a 6 1/2 hour trip, now many kilometers did they travel?

   b. If the Head brothers average driving 2654 kilometers per month, how far would they drive in a year?

   c. Curl E. Head recently drove 340 kilometers in 4 1/4 hours. What was his average rate of speed?

   d. Ball D. Head averaged driving 75 kilometers per hour on a 925 kilometer trip. How long did the trip take?

2. a. Hunter Bargon bought 124 cases of Really Oily Motor Oil from C.C.'s Overseas Importees. If each case contained 24 liters of oil, how many liters of oil did he buy?

   b. If Hunter paid $.125 per liter for the oil, how much did he spend?

   c. Hunter plans to mark the price of the oil up 200% and sell it at his store. How much would 8 liters of oil cost after the price increase?

3. a. Poore Lucke won a trip for two to Siberia. He and his wife, Goode, plan to tour the country once they get there. One of their road maps has a scale of 25 mm = 60 km. If the distance between two locations on the map is 125 mm, how many kilometers apart are the two cities?

   b. A distance of 360 km would be represented by ____mm on the map mentioned above.

   c. Poore Lucke thought that they would try to travel 945 km the first three days they were in Siberia. What would be their average daily traveling distance if they were to do what Poore had planned to accomplish?

   d. As luck would have it, the Lucke's car broke down after they had traveled .8 of their three-day trip. How many kilometers had they driven before the breakdown? ...How much further did they have to travel?

   e. The Luckes found out that they could not purchase more than 10 liters of gasoline at each service station stop. If they had to pay 6.4 kopecks for each liter of gasoline, how much would 9.8 liters cost?

ESTIMATING AND FINDING

DISTANCE

TIME

COST.....

DIRECTIONS: *On the following trips our car will average 50 miles per hour and get 15 miles per gallon on gasoline which costs 48.9¢ per gallon.*

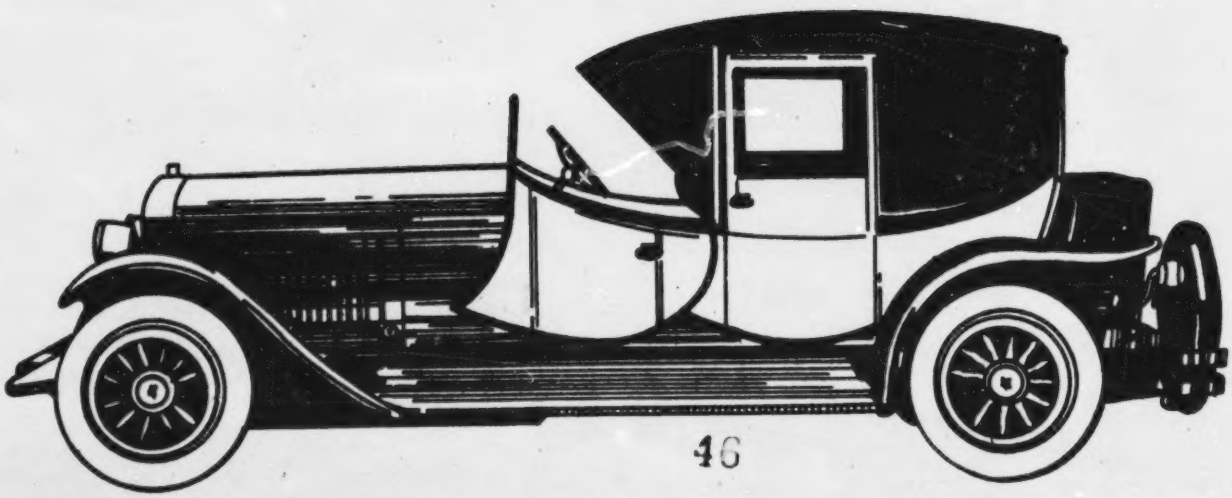
Look at the map and ESTIMATE *the* DISTANCE *between the towns listed below. After recording this information in the first column,* ESTIMATE HOW LONG *you would expect each trip to take and write it in the second column. Finally, write the* ESTIMATED COST *of the trip in the third column.*

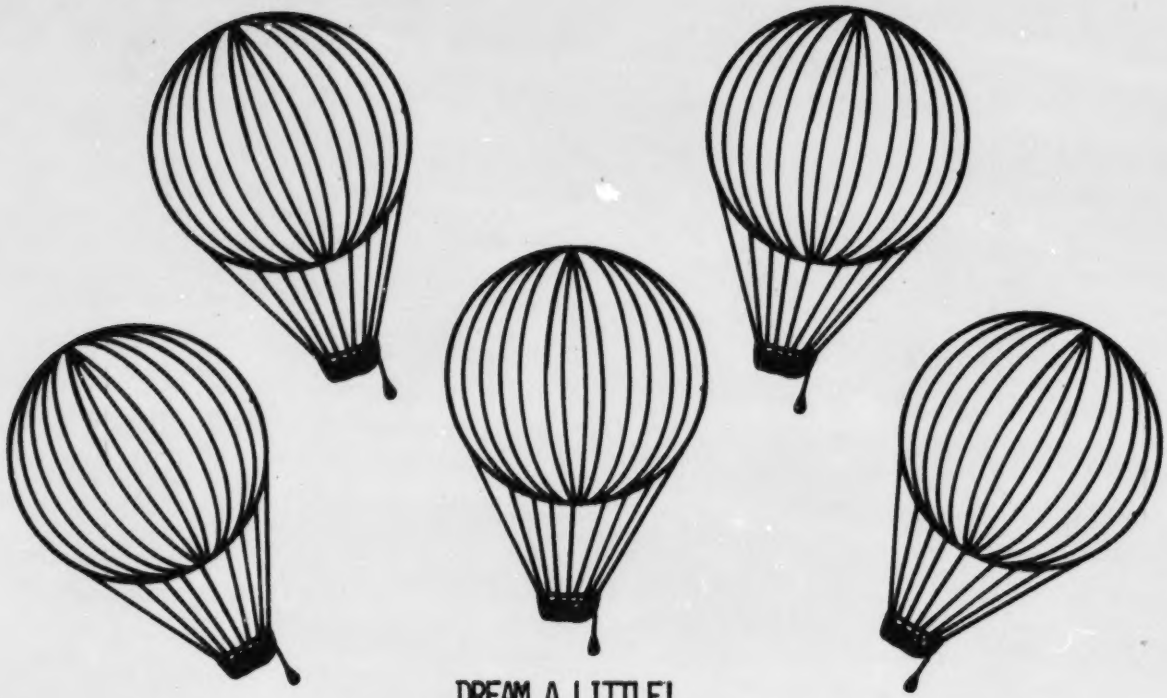
Trip	Estimated Distance	Estimated Time	Estimated Cost
1. From Winston-Salem to Raleigh	_____	_____	_____
2. From Gastonia to Greensboro	_____	_____	_____
3. From Charlotte to Wilmington	_____	_____	_____
4. From Fayetteville to Elizabeth City	_____	_____	_____

Now use the mileage chart on the map to determine the distance between towns and then calculate the time and cost of each trip using the mileage and the information provided at the top of the page.

	Distance	Time	Cost
5. From Winston-Salem to Raleigh	_____	_____	_____
6. From Gastonia to Greensboro	_____	_____	_____
7. From Charlotte to Wilmington	_____	_____	_____
8. From Fayetteville to Elizabeth City	_____	_____	_____

Compare your estimates with the actual calculated results for each trip. Are you close in your estimates? Is there a pattern? Are the answers usually high or low?





DREAM A LITTLE!

DIRECTIONS: *Within your group, plan a trip from your town to some other city in North Carolina at least 100 miles away. Include the following items in your planning:*

1. Route: List the highways, stops, and places of interest for going and returning.

2. Distance: How far do you anticipate traveling on the trip?

3. Time: How long will the trip take? Include estimates for food, gasoline and sightseeing stops.

4. Cost: List expense areas and estimated amounts. Include such things as food, gasoline, and sightseeing. Indicate the anticipated gas mileage of your car and the current cost of gasoline.

5. How long would you have to save to pay for such a trip? Is it worth the cost?

OFFICIAL 1970 CENSUS

STATE OF NORTH CAROLINA 5,082,059

Counties

Alamance	96,362	Gaston	148,415	Pamlico	9,467
Alexander	19,466	Gates	8,524	Pasquotank	26,824
Alleghany	8,134	Graham	6,562	Pender	18,149
Anson	23,488	Granville	32,762	Perquimans	8,351
Ashe	19,571	Greene	14,967	Person	25,914
Avery	12,655	Guilford	288,590	Pitt	73,900
				Polk	11,735
Beaufort	35,980	Halifax	53,884	Randolph	76,358
Bertie	20,528	Harnett	49,667	Richmond	39,889
Bladen	26,477	Haywood	41,710	Robeson	84,842
Brunswick	24,223	Henderson	42,804	Rockingham	72,402
Buncombe	145,056	Hertford	23,529	Rowan	90,035
Burke	60,364	Hoke	16,436	Rutherford	47,337
		Hyde	5,571		
Cabarrus	74,629			Sampson	44,954
Caldwell	56,699	Iredell	72,197	Scotland	26,929
Camden	5,453			Stanly	42,822
Carteret	31,603	Jackson	21,593	Stokes	23,782
Caswell	19,055	Johnston	61,737	Surry	51,415
Catawba	90,873	Jones	9,779	Swain	7,861
Chatham	29,554				
Cherokee	16,330			Transylvania	19,713
Chowan	10,764	Lee	30,467	Tyrrell	3,806
Clay	5,180	Lenoir	55,204		
Cleveland	72,556	Lincoln	32,682	Union	54,714
Columbus	46,937				
Craven	62,554	McDowell	30,648	Vance	32,691
Cumberland	212,042	Macon	15,788		
Currituck	6,976	Madison	16,003	Wake	228,453
		Martin	24,730	Warren	15,810
		Mecklenburg	354,656	Washington	14,038
Dare	6,995	Mitchell	13,447	Watauga	23,404
Davidson	95,627	Montgomery	19,267	Wayne	85,408
Davie	18,855	Moore	39,048	Wilkes	49,524
Duplin	38,015			Wilson	57,486
Durham	132,681	Nash	59,122		
		New Hanover	82,996	Yadkin	24,599
Edgecombe	52,341	Northampton	24,009	Yancey	12,629
Forsyth	214,348	Onslow	103,126		
Franklin	26,820	Orange	57,707		

Population Incorporated and Unincorporated Places of 1,000 or more

Aberdeen	1,592	Biscoe	1,244	Clarkton	662
Acme	459	Black Creek	449	Clayton	3,103
Advance	206	Black Mountain	3,204	Cleveland	614
Ahoskie	5,105	Bladenboro North (U)	1,705	Clinton	7,157
Albemarle	11,126	Bladenboro	783	Clyde	900
Alexander Mills	988	Blowing Rock	801	Coats	1,051
Alliance	577	Boger City (U)	2,203	Colerain	373
Andrews	1,384	Boiling Springs	2,284	Columbia	902
Angier	1,431	Boiling Springs Lakes	245	Columbus	731
Ansonville	694	Bolivia	185	Como	211
Apex	2,192	Bolton	534	Concord	18,464
Arapahoe	212	Boone	8,754	Concord North (U)	2,350
Archdale	6,103	Boonville	687	Conetoe	160
Arlington	711	Bostic	289	Conover	3,355
Asheboro	10,797	Brevard	5,243	Conway	694
Asheboro South (U)	1,998	Bridgeton	520	Cooleemee (U)	1,115
Asheboro West (U)	1,158	Broadway	694	Cornelius	1,296
Asheville	57,681	Brookford	590	Council	38
Askewville	247	Brunswick	206	Cove City	485
Atkinson	325	Bryson City	1,290	Cramerton (U)	2,142
Atlantic Beach	300	Buies Creek	2,024	Creedmoor	1,405
Aulander	947	Bunlevel	200	Creswell	633
Aurora	620	Bunn	284	Crossnore	264
Autryville	213	Burgaw	1,744	Culberson	83
Ayden	3,450	Burlington	35,930	Dallas	4,059
		Burnsville	1,348	Danbury	152
Badin (U)	1,626	Butner	3,538	Daniels-Rhyne (U)	2,273
Bailey	724	Calypso	462	Davidson	2,931
Bakersville	409	Cameron	204	Dellview	11
Balfour Hills (U)	2,014	Camp Lejeune (U)	34,549	Denton	1,017
Balfours (U)	4,836	Candor	561	Dillsboro	215
Banner Elk	754	Canton	5,158	Dobson	933
Bannertown (U)	1,138	Cape Carteret	616	Dover	585
Barker Heights (U)	2,933	Carolina Beach	1,663	Drexel	1,431
Bath	231	Carrboro	3,472	Dublin	283
Battleboro	688	Carthage	1,034	Dudley	199
Bayboro	665	Cary	7,430	Dundarrach	53
Beargrass	99	Cashiers	230	Dunn	8,302
Beaufort	3,368	Castalia	265	Durham	95,438
Belhaven	2,259	Catawba	565	East Bend	485
Belmont	4,814	Centerville	123	East Flat Rock (U)	2,627
Belmont-South (U)	2,278	Cerro Gordo	184	East Laurinburg	487
B-S Rosemary (U)	2,260	Chadbourn	2,213	East Marion (U)	3,015
Benson	2,267	Chadwick Acres	12	East Rockingham (U)	2,858
Bessemer City	5,217	Chapel Hill	25,537	East Spencer	2,217
Bethel	1,514	Charlotte	241,178	Edenton	4,766
Beulaville	1,156	Cherry Point	12,029	Eden	15,871
Biltmore Forest	1,298	Cherryville	5,258	Edward	115
		China Grove	1,788	Elizabeth City	14,069
		Chocowinity	566	Elizabethtown	1,418
		Claremont	788		

Elkin	2,899
Elk Park	503
Ellenboro	465
Ellerbe	913
Elm City	1,201
Elon College	2,150
Emerald Isle	122
Enfield	3,272
Erwin	2,852
Eureka	263
Everetts	198
Fair Bluff	1,039
Fairmont	2,827
Faison	598
Faith	506
Falcon	357
Falkland	130
Farmville	4,424
Fayetteville	53,510
Flat Rock (U)	1,688
Forest City	7,179
Fort Bragg	46,995
Fountain	434
Four Oaks	1,057
Franklin	2,336
Franklinton	1,459
Franklinville	794
Fremont	1,596
Fuquay-Varina	3,576
Garland	656
Garner	4,923
Garysburg	231
Gaston	1,105
Gastonia	47,142
Gastonia East (U)	2,370
Gastonia North(U)	1,316
Gastonia South(U)	3,718
Gatesville	338
Gibson	502
Gibsonville	2,019
Glen Alpine	797
Glen Raven (U)	2,848
Godwin	129
Gold Point	108
Goldsboro	26,810
Goldston	364
Graham	8,172
Granite Falls	2,388
Granite Quarry	1,344
Greensboro	144,076
Greenville	29,063
Grifton	1,860
Grimesland	394
Grover	555
Guilford College	61
Halifax	335
Hamilton	579
Hamlet	4,627
Harkers Island (U)	1,633
Harmony	377
Harrells	249
Harrellsville	165
Hassell	160
Havelock	5,283
Haw River (U)	1,542
Hayesville	428
Hazelwood	2,057
Henderson	13,896
Henderson North (U)	1,997
Henderson South (U)	1,843
Hendersonville	6,443
Hendersonville West (U)	1,558
Henrietta Avondale (U)	1,307
Hertford	2,023
Hickory	20,569
Hickory East (U)	4,181
Hickory North (U)	2,325
Highlands	583
High Point	63,204
Hildebran	481
Hillsboro	1,444
Hobgood	530
Hoffman	434
Holly Ridge	415
Holly Springs	697
Hookerton	441
Hope Mills	1,721
Hot Springs	653
Hudson	2,820
Huntersville	1,538
Indian Trail	405
Jackson	762
Jacksonville	16,021
James City (U)	2,577
Jamestown	1,297
Jamesville	533
Jefferson	943
Jonesville	1,659
Jupiter	208
Kannapolis (U)	36,293
Kelford	295
Kenansville	762
Kenly	1,370
Kernersville	4,815
Kill Devil Hills	357
King (U)	1,033
Kings Mountain	8,465
Kinston	22,309
Kittrell	427
Knightdale	815
Kure Beach	394
La Grange	2,558
Lake Lure	456
Lake Waccamaw	924
Landis	2,297
Landis North-East (U)	1,353
Lansing	283
Lasker	114
Lattimore	257
Laurel Hill (U)	1,215
Laurel Park	581
Laurinburg	8,859
Laurinburg West (U)	1,156
Lawndale	544
Lenoir	14,705
Lewiston	327
Lexington	17,205
Liberty	2,167
Lilesville	641
Lillington	1,155
Lincolnton	5,293
Linden	205
Littleton	903
Long Beach	493
Longhurst (U)	1,485
Longview	3,360
Longwood Park (U)	1,284
Louisburg	2,941
Love Valley	40
Lowell	3,307
Lucama	610
Lumber Bridge	117
Lumberton	16,961
McAdenville	950
McDonald	80
McFarlan	140
Macclesfield	536

Macon	179
Madison	2,018
Magnolia	614
Maiden	2,416
Manteo	547
Margaretsville	95
Marietta	70
Marion	3,335
Marshall	982
Mars Hill	1,623
Marshville	1,405
Matthews	783
Maury	421
Maxton	1,885
Mayodan	2,875
Maysville	912
Mebane	2,433
Micro	300
Middleburg	149
Middlesex	729
Milton	235
Milwaukee	376
Mocksville	2,529
Monroe	11,282
Mooresville	8,808
Morehead City	5,233
Morganton	13,625
Morgantown (U)	3,547
Morrisville	192
Mortimer	27
Morven	562
Mount Airy	7,325
Mount Gilead	1,286
Mount Holly	5,107
Mount Olive	4,914
Mount Pleasant	1,174
Murfreesboro	3,508
Murphy	2,082
Nags Head	414
Nashville	1,670
New Bern	14,660
Newland	524
New London	285
Newport	1,735
New River-Gieger (U)	8,699
Newton	7,857
Newton Grove	546
Norlina	969
North Belmont (U)	10,759
North Wilkesboro	3,357
Norwood	1,896
Oakboro	568
Oak City	559
Ocean Isle Beach	78
Old Fort	676
Oriental	445
Orrum	162
Oxford	7,178
Palmyra	27
Pantego	218
Parkersburg	56
Parkton	550
Parkwood (U)	2,267
Parmele	373
Patterson	344
Peachland	556
Pembroke	1,982
Phillipsville (U)	1,239
Pikeville	580
Pilot Mountain	1,309
Pinebluff	570
Pinehurst (U)	1,056
Pine Level	983
Pinetops	1,379
Pinetown	278
Pineville	1,948
Pink Hill	522
Pittsboro	1,447
Plymouth	4,774
Polkton	845
Pollocksville	456
Powellsville	247
Princeton	1,044
Princeville	654
Proctorville	157
Raeford	3,180
Raleigh	121,577
Ramseur	1,328
Randleman	2,312
Ranlo	2,092
Red Oak	359
Red Springs	3,383
Reidsville	13,636
Rhodhiss	784
Richfield	306
Richlands	935
Rich Square	1,254
Roanoke Rapids	13,508
Robbins	1,059
Robbinsville	777
Robersonville	1,910
Rockingham	5,852
Rockwell	999
Rocky Mount	34,284
Rolesville	529
Ronda	465
Roper	649
Roseboro	1,235
Rose Hill	1,448
Rosman	407
Rowan Mill (U)	1,184
Rowland	1,358
Roxboro	5,370
Roxobel	347
Royal Pines (U)	2,041
Rural Hall (U)	2,338
Ruth	360
Rutherfordton	3,245
St. Pauls	2,011
Salemburg	669
Salisbury	22,515
Saluda	546
Sanford	11,716
Saratoga	391
Scotland Neck	2,869
Seaboard	611
Seagrove	354
Selma	4,356
Seven Springs	188
Severn	356
Seymour-Johnson (U)	8,172
Shallotte	597
Sharpsburg	789
Shelby	16,328
Siler City	4,689
Sims	205
Skyland	2,177
Smithfield	6,677
Smithtown	196
Snow Hill	1,359
South Creek	73
Southern Pines	5,937
South Goldsboro (U)	2,094
Southport	2,220
South Salisbury (U)	2,199
South Wadesboro	109
South Weldon (U)	1,630
Sparta	1,304
Speed	142
Spencer	3,075
Spencer Mountain	300

Spindale	3,848
Spring Hope	1,334
Spring Lake	3,968
Spruce Pine	2,333
Staley	239
Stanfield	458
Stanley	2,336
Stanleyville (U)	2,362
Stantonsburg	869
Star	892
Statesville	19,996
Stedman	505
Stem	242
Stoneville	1,030
Stonewall	335
Stony Point (U)	1,001
Stovall	405
Sunset Beach	108
Surf City	166
Swannanoa (U)	1,966
Swansboro	1,207
Swan Station	196
Sylva	1,561
Tabor City	2,400
Tarboro	9,425
Tarheel	87
Taylorsville	1,231
Teacheys	219
Thomasville	15,230
Toast (U)	2,635
Todd	98
Topsail Beach	41
Trenton	539
Trent Woods	719
Troutman	797
Troy	2,429
Tryon	1,951
Turkey	329
Valdese	3,182
Vanceboro	758
Vandemere	379
Vass	885
Waco	245
Wade	315
Wadesboro	3,977
Wagram	718
Wake Forest	3,148
Walkertown (U)	1,652
Wallace	2,905
Walnut Cove	1,213
Walstonburg	176
Warrensville	224
Warrenton	1,035
Warsaw	2,701
Washington	8,961
Washington Park	517
Watha	181
Waxhaw	1,248
Waynesville	6,488
Weaverville	1,280
Webster	181
Weldon	2,304
Wendell	1,929
West Burlington (U)	1,471
West Concord (U)	5,347
West Hillsborough (U)	1,696
West Jefferson	889
West Marion (U)	3,034
West Statesville (U)	3,079
Whispering Pines	362
Whitakers	926
White Lake	232
Whiteville	4,195
Wilkesboro	1,974
Williamston	6,570
Wilmington	46,169
Wilson	29,347
Wilson Mills	283
Windsor	2,199
Winfall	581
Wingate	2,569
Winston-Salem	132,913
Winterville	1,437
Winton	917
Woodland	744
Woodville	253
Wrightsville Beach	1,701
Yadkinville (U)	2,232
Yanceyville (U)	1,274
Yaupon Beach	334
Youngsville	555
Zebulon	1,839

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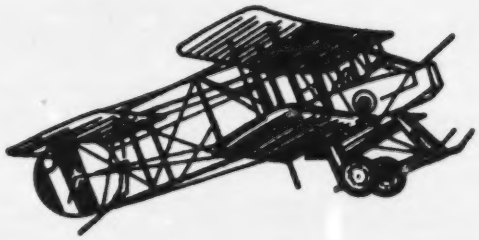

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Answer Key for Roadmapping Through the Land of Mathematics

Page 1.

1. 13
2. 84½
3. US 129
4. 20
5. 4
6. Answers will vary
7. 17 7/8 miles
8. 11
9. Small circle

Page 2.

1. US 29-A
2. Northeast on US 29-A, 70-A, or NC 6
3. Buffalo Lake, Lake Hamilton, Lake Euphemia, Philadelphia Lake
4. East on US 17 to NC 132 and then south on NC 132 to campus which will be on the left.
5. West on US 17 through Wilmington and battleship will be on the right after crossing the Cape Fear River.
6. South on US 21 to Trade Street, turn left on Trade Street and continue straight until it becomes Randolph Road. The Mint Museum of Art will be on the right.

Page 3.

1. I-85 and I-40
2. I-26 and I-77
3. a. Bodie Island - Manchese
   b. Cape Hatteras - Buxton
   c. Cape Lookout - Harkers Island
   d. Cape Fear - Southport or Caswell Beach
4. Lake Norman
5. Postell; Sunset Beach; Rodanthe
6. 52,712
7. 5,082,059
8. 36°
9. 78°

Page 4.

The exercises on this page should lead to a lively class discussion. This is especially true of part B since several of the items are relatively open-ended and have more than one acceptable answer.

A.
1. Goldsboro
2. Raleigh
3. Gastonia
4. Greensboro
5. Fayetteville
6. Hickory
7. Charlotte
8. Lumberton
9. Wilmington
10. Asheville

B.
1. Bentonville Battlefield and Cliffs of the Neuse State Park
2. Mount Mitchell State Park, Linville Caverns, Crabtree Meadow, and Craggy Meadows
3. Fontana Lake
4. Kerr Reservoir and Lake Gaston
5. White Lake, Jones Lake State Park and Lake Waccamaw
6. Gaddy's Goose Refuge, Lake Tillery, Bodin Lake, and Morrow Mountain State Park
7. Hanging Rock State Park and Pilot Mountain State Park
8. Alamance Battleground and N. C. Zoological Park and Gardens
9. Historic Edenton
10. Fort Raleigh National Monument, Outer Banks, Bodie Island Lighthouse, and Pamlico Sound

Page 5.

1. Eden
2. Durham
3. Wilmington
4. Albemarle
5. Edenton
6. Shelby
7. Eden
8. Durham
9. Winston-Salem

Page 6.

1. Greensboro
2. Statesville
3. Wilson
4. Asheboro
5. Gastonia
6. Goldsboro
7. Sanford
8. Charlotte
9. Greenville
10. Asheville

Page 7. State Parks

1. Mount Jefferson
2. Stone Mountain
3. Pilot Mountain
4. Hanging Rock
5. Boones Cave
6. Morrow Mountain
7. Raven Rock
8. Jones Lake
9. Cliffs of the Neuse
10. Masonboro
11. Duke Power

National Parks

1. Kill Devil Hills and Wright Brothers National Memorial
2. Cone Memorial Park
3. Vance Birthplace, Craggy Gardens, and Mount Mitchell
4. Looking Glass Falls and Cradle of Forestry
5. Tryon Palace
6. Fort Macon State Park and State Port
7. Fort Fisher and Masonboro State Park

Page 8.

1. 681	5. 326	9. 74	13. 142
2. 205	6. 93	10. 167	14. 449
3. 121	7. 443	11. 386	15. 170
4. 105	8. 242	12. 280	16. 140

Page 9. In determining the distances for the answer key we tried to consistently use the mileage through the towns on the route between the origin and destination. As a result of this your students may have trouble obtaining the same distances we did. We would recommend that you allow a tolerance of about five miles for the mileage answers.

1. 123	5. 80	9. 68	13. 140
2. 100	6. 104	10. 83	14. 145
3. 106	7. 113	11. 85	15. 129
4. 81	8. 80	12. 132	

Page 10.

1. US117, NC 24, and NC 50
2. I-85, US 29, US 52, US 70, US 64, and NC 8
3. US 421 and US 21
4. NC 73, NC 109, and NC 731
5. US 13, US 701, NC 50, and NC 55
6. NC 904 and NC 905
7. NC 111, NC 241, NC 24 and NC 41
8. NC 18, NC 181, NC 126, US 64, US 70 and I-40

9. NC 134, NC 109, NC 24, and NC 27
10. US 64, US 23, US 441, and NC 28
11. NC 222 and US 264
12. NC 49, NC 62, NC 87, US 70, and I-85
13. US 258, NC 305, and NC 561
14. US 1, US 220, and US 74

Page 11. We hope that your students will particularly enjoy working the last three exercises as the answers are probably not what they would expect to find on a mathematics assignment.

1. Chesnee, South Carolina; 58
2. Gilkey; 68
3. Polkville; 79
4. Carbonton; 108
5. Plymouth; 106
6. Stuart, Virginia; 115
7. Brinkleyville; 117
8. The water; 213
9. On Mount Mitchell
10. Oriental

Pages 12-13. In compiling these distances we included the mileage through the towns on the route between the origin and destination. Consequently, your students may not obtain the same distances we did. You will find that the larger the towns the highway passes through the greater will be the margin of error. We would recommend that you allow a reasonable tolerance for the answers.

A logical follow-up to this assignment would be to ask the students if there are routes which are longer but may require less time to drive than shortest route. Then have them discuss why.

1. A. 164; B. 143; C. 153, thus B is closest.
2. A. 155; B. 169; C. 149, thus C is closest.
3. A. 114; B. 112; C. 110, thus C is closest.
4. A. 117; B. 90; C. 95, thus B is closest.
5. A. 208; B. 200; C. 223, thus B is closest.
6. A. 181; B. 174; C. 204, thus B is closest.

Page 14. A. 1. Wilmington
2. Hickory
3. Kannapolis
4. Greenville
5. Greensboro

B. 1. 65; 49; 16
2. 84; 78; 6
3. 54; 46; 8
4. 74; 72; 2
5. 229; 75; 154

C. 1. 1/2 hour or 30 minutes
2. 7/10 hour or 42 minutes
3. 2/10 hour or 12 minutes

Page 15.
1. 3,182; three thousand one hundred eighty two
2. 1,431; one thousand four hundred thirty one
3. 95,438; ninety five thousand four hundred thirty eight
4. 2,569; two thousand five hundred sixty nine
5. 2,011; two thousand eleven
6. 144,076; one hundred forty four thousand seventy six
7. 14,660; fourteen thousand six hundred sixty
8. 16,961; sixteen thousand nine hundred sixty one
9. 121,577; one hundred twenty one thousand five hundred seventy seven
10. 20,569; twenty thousand five hundred sixty nine
11. 241,178; two hundred forty one thousand one hundred seventy eight
12. 13,636; thirteen thousand six hundred thirty six
13. 6,103; six thousand one hundred three
14. 35,930; thirty five thousand nine hundred thirty
15. 132,913; one hundred thirty two thousand nine hundred thirteen

Page 16.
1. 2,164
2. 316
3. 14,658
4. 12,350
5. 22,499
6. 183,497
7. 4,788
8. 7,606
9. 1,668
10. 6,819
11. 2,153
12. 6,729
13. 27,549
14. 3,604
15. 3,565
16. 14,159
17. 14,958
18. 24,089
19. 1,101
20. 205,248
21. 94,841
22. 34,170
23. 3,164

Page 17.
1. 11,300
2. 16,760
3. 57,489
4. 95,203
5. 142,443
6. 3,534
7. 16,301
8. 794
9. 6,298
10. 21,424
11. 13,378
12. 16,312
13. 4,774
14. 55,821
15. 11,587
16. 35,390
17. 2,808
18. 6,947
19. 20,439
20. 45,796
21. 29,108
22. 132,815
23. 241,036
24. 9,438
25. 14,816

Page 18.
Group 1. Askewville, Aurora, Andrews, Ayden, Ahoskie, Archdale
Group 2. Dillsboro, Crossnore, Grover, Badin, Burgaw, Elon College, Fairmont
Group 3. Seven Springs, Saluda, Knightdale, Roseboro, Nashville, Norwood, Liberty, North Wilkesboro, Garner
Group 4. Laurel Park, Jefferson, Lillington, Ramseur, Andrews, Walkertown, Murphy, Canton, Mount Airy, Boone, Cherry Point, Concord

Page 19. Group 1. Waynesville, Whiteville, Stanleyville, Yadkinville, Winterville, Weaverville, Yanceyville, Taylorsville, Stoneville, Youngsville, Woodville, Warrensville

Group 2. Chapel Hill, Benson, Mars Hill, Rose Hill, Snow Hill, Biscoe, Laurel Hill, Roper, Pink Hill, Micro, Bath

Page 20.

1. Dellview
2. Chadwick Acres
3. Mortimer
4. Palmyra
5. Council
6. Love Valley
7. Topsail Beach
8. Dundarrach
9. Parkersburg
10. Guilford College
11. Marietta
12. South Creek
13. Ocean Isle Beach
14. McDonald
15. Culberson
16. Tar Heel
17. Margaretsville
18. Todd
19. Beargrass

Page 21.

1. Charlotte
2. Greensboro
3. Winston-Salem
4. Raleigh
5. Durham
6. High Point
7. Asheville
8. Fayetteville
9. Gastonia
10. Fort Bragg
11. Wilmington
12. Kannapolis
13. Burlington
14. Camp Lejeune
15. Rocky Mount
16. Wilson
17. Greenville
18. Goldsboro
19. Chapel Hill
20. Salisbury

Pages 22-23.

1. 432
2. 4,937
3. 3,961
4. 159,934
5. 61
6. 35,548

Page 24.

1. A.

Pinetops	1,379
Saratoga	391
Roper	649
Macclesfield	536
Oriental	445
Tarboro	9,425

B. 2,138

2. A.

Winston-Salem	132,913
High Point	63,204
Wingate	2,569
Monroe	11,202
Charlotte	241,178
Statesville	19,996

B. 78,524

Pages 25-26. 3. A.

Boger City	2,203
Shelby	16,328
Boiling Springs	2,284
Todd	98
Swannanoa	1,966
Catawba	565

B. 3907

4. A.

East Spencer	2,217
Pittsboro	1,447
Mayodan	2,875
New London	285
Spencer	3,075
Badin	1,626

B. 1,921

C. Will vary (about 41)

D. Will vary (about the same)

Page 27. Rounding to Tens

1. 5,230
2. 360
3. 120
4. 6,440
5. 1,360
6. 300
7. 8,960
8. 200
9. 920
10. 1,360
11. 90
12. 210
13. 2,260
14. 4,910
15. 30
16. 3,360
17. 600
18. 40
19. 121,580
20. 200 or 210 depending upon method used for rounding

Rounding to Hundreds

1. 16,300
2. 800
3. 300
4. 300
5. 200
6. 300
7. 400
8. 1,400
9. 47,000
10. 1,100
11. 8,800
12. 1,400
13. 1,400
14. 500
15. 3,500
16. 18,500
17. 5,300
18. 13,500
19. 900
20. 1,400

Page 28.

1. 54,000
2. 1,000
3. 241,000
4. 11,000
5. 23,000
6. 34,000
7. 95,000
8. 15,000
9. 47,000
10. 16,000
11. 29,000
12. 21,000
13. 22,000
14. 7,000
15. 27,000
16. 3,000
17. 14,000
18. 144,000
19. 14,000
20. 5,000

Page 29.

1. 3,850; 3,800; 4,000
2. 13,640; 13,600; 14,000
3. 1240; 1200; 1000
4. 25,540; 25,500; 26,000
5. 4,630; 4,600; 5,000
6. 60; 100; 0
7. 940; 900; 1,000
8. 132,910; 132,900; 133,000
9. 9,420; 9,400; 9,000
10. 14,660; 14,700; 15,000
11. 1,000; 1,000; 1,000
12. 34,550; 34,500; 35,000
13. 2,020; 2,000; 2,000
14. 1,000; 1,000; 1,000
15. 900; 900; 1,000
16. 46,170; 46,200; 46,000
17. 10,800; 10,800; 11,000
18. 6,570; 6,600; 7,000
19. 57,680; 57,700; 58,000
20. 20,000; 20,000; 20,000

Page 30.

1. 4
2. 2½
3. 2
4. 4
5. 16 times
6. 10
7. 16
8. 4
9. 1½
10. 23

Page 31. Since North Carolina has 100 counties the solutions to many of the exercises on this page are easy. A word of caution on exercise 13 is: since some counties border two states, you cannot add the answers to exercises 1, 4, 7 and 10 and then subtract this sum from 100%. If you did this it would result in some counties being counted more than once.

1. 10%
2. 170,172
3. 3.3%
4. 15%
5. 370,027
6. 7.3%
7. 15%
8. 1,019,831
9. 20.1%
10. 4%
11. 58,891
12. 1.2%
13. 59%

Page 32.

1. $89.96
2. $140.92
3. $225.29
4. $121.16
5. $112.84
6. $243.36
7. $ 80.21
8. $146.25
9. $ 92.43
10. $189.67

Page 33.

1. $187.50
2. $112.50
3. $262.50
4. $450.00
5. $412.50
6. $150.00
7. $337.50
8. $225.00
9. $375.00
10. $562.50

Page 34

1. Fuquay-Varina or Raleigh
2. Lexington
3. Morganton
4. Greenville
5. Chinquapin
6. Hoffman
7. Wilmington
8. Asheville or Monroe
9. Asheboro or Greensboro
10. Raleigh

Page 35.

1. Mecklenburg; Tyrrell; 350,850
2. Surry
3. 1,467
4. 7,653
5. 5,246
6. 17%
7. 20%
8. 2.4%
9. 25.9%
10. 9%

Page 36.

1. Both on islands
2. Both on or near interstate highways
3. Both near military bases
4. Both near State parks
5. Both near game refuges
6. Both on U.S. 17 and both are on rivers which empty into the Atlantic Ocean
7. Both on large lakes

8. Rodanthe is the eastern-most town whereas Postell is the western-most
9. Both in Brunswick County on U.S. 17
10. Both on U.S. 64

Page 37.
1. 200%
2. 412
3. $30,139.34
4. a. $689,780.10 b. $22.68; $51,651.78 c. 4,905
5. a. $4,935.00 b. $740.25
6. 10,283
7. 3,631

Page 38.
1. a. 423.1 b. 1,957.2 c. 834.3

b is 1,000 miles too much. Probably due to an error in reading the odometer

2. a. 614.1 b. 742.4 c. 1742.1

c is 1,000 miles less than it should be. Probably due to an error in reading the odometer.

3. a. 207.1 b. 514.5 c. 533.6

b is 1,000 miles less than it should be. Probably due to an error in reading the odometer.

4. a. 304.0 b. 1,247.5 c. 1,098.0

b is 1,000 miles too much. Probably due to an error in reading the odometer.

5. a. 612.2 b. 2,805.3 c. 1,761.8

c is 1,000 miles too much.

6. a. 372.0 b. 756.9 c. 1,394.7

c is 1,000 miles too much.

7. a. 892.0 b. 1,316.1 c. 892.1

b is 1,000 miles too much.

Page 39. The purpose of this assignment is to illustrate to your students that the mathematics needed to work with the Metric System of Measurement is the same as that required to work with our presently adopted system of measurement.

1. a. 520 kilometers
   b. 31,848 kilometers
   c. 80 kilometers per hour
   d. 12 1/3 hours or 12 hrs. 20 min.

2. a. 2,976
   b. $372.00
   c. $3.00

3. a. 300 km
   b. 150
   c. 315 km
   d. 756; 189
   e. 62.72 kopecks

Page 40. The first four exercises are open-ended in that almost any estimates can be acceptable.

1 - 4 Answers will vary.
5. 105 miles; 2 hours 6 minutes; $3.42
6. 112 miles; 2 hours 14 minutes; $3.67
7. 203 miles; 4 hours 4 minutes; $6.60
8. 194 miles; 3 hours 53 minutes; $6.36

Page 42. Answers will vary.